Gay *Pediatric Rheumatology* 2014, **12**(Suppl 1):I12
http://www.ped-rheum.com/content/12/S1/I12

PEDIATRIC RHEUMATOLOGY

INVITED SPEAKER PRESENTATION Open Access

Epigenetics in rheumatic diseases

Steffen Gay

From 21st European Pediatric Rheumatology (PReS) Congress
Belgrade, Serbia. 17-21 September 2014

With enormous speed novel data are emerging about regulating the expression of the genetically encoded information [1]. This highly complex regulatory network called *epigenetics* includes acetylation, methylation, phosphorylation, sumoylation and non-coding RNAs (ncRNA), such as miRNA and lncRNAs. Our laboratory is addressing over the past decade inflammatory rheumatic diseases [2], like rheumatoid arthritis (RA), AS, SSc and pulmonary hypertension and thereby searching for the regulation of pro-inflammatory cytokines [3,4], novel diagnostic signatures and new therapeutic targets. In this regard, DNA demethylation of RA synovial cells can be modulated by targeting specific enzymes [5]. Also, miRNA signatures for new response markers are in development [6].

Disclosure of interest

None declared.

Published: 17 September 2014

References

1. Dunham I, *et al*: **An integrated encyclopedia of DNA elements in the human genome.** *Nature* 2012, **489**:57-74.
2. Gay S, Wilson AG: **The emerging role of epigenetics in rheumatic diseases.** *Rheumatology* 2013, (Epub ahead of print).
3. Brock M, *et al*: **MicroRNA-18a enhances the IL-6 mediated production of the acute-phase proteins fibrinogen and haptoglobin in human hepatocytes.** *J Biol Chem* 2011, **286**:40142-50.
4. Trenkmann M, Brock M, Gay RE, Michel BA, Gay S, Huber LC: **The TNFα-induced miR-18a activates rheumatoid arthritis synovial fibroblasts through a feedback loop in NF-κB signaling.** *Arthritis Rheum* 2013, **65**:916-27.
5. Neidhart M, Karouzakis E, Jüngel A, Gay RE, Gay S: **Inhibition of spermidine/spermine N1-acetyltransferase (SSAT1) activity - a new therapeutical concept in rheumatoid arthritis.** *Arthritis Rheumatol* 2014, [Epub ahead of print].
6. Filková M, *et al*: **Association of circulating miR-223 and miR-16 with disease activity in patients with early rheumatoid arthritis.** *Ann Rheum Dis* 2013, (Epub ahead of print).

doi:10.1186/1546-0096-12-S1-I12
Cite this article as: Gay: Epigenetics in rheumatic diseases. *Pediatric Rheumatology* 2014 **12**(Suppl 1):I12.

Rheumatology, University Hospital, Zürich, Switzerland